IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant:	Ryan Thomas Bechard	Examiner:	SUERETH, Sarah Elizabeth
Serial No.	10/709,693	Art Unit:	3749
Filed:	May 24, 2004	Docket No.	205.001US1
Title:	OIL PREHEATER FOR A COMBUSTION SYSTEM		

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P.O. BOX 1450
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Sir:

The U.S. Patent and Trademark Office is hereby authorized to debit any costs and fees associated with this Petition to Deposit Account No. 50-1391. Appellant(s) is submitting this single copy of the Appeal Brief in Compliance with the requirements of 37 CFR 41.37(c). Appellant requests a personal appearance at the Board of Appeals, but will defer payment of the fee until after receipt of the Examiner's Answer.

CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigned hereby certifies that this Transmittal Letter and the paper, as described herein, are being deposited in the United States Postal Service by facsimile transmission, or as first class mail, with sufficient postage, in an envelope addressed to: MAIL STOP: APPEAL BRIEF - PATENTS, P.O. BOX 1450, Commissioner for Patents, Alexandria, VA 22313-1450 26 April 2010.

Mark A. Litman
Name

Signature

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REAL PARTY IN INTEREST

The real party in interest in this Appeal is the assignee of the full right, title and interest in this Application, Ryan Thomas Bechard, the sole inventor of the Application.

RELATED APPEALS AND INTERFERENCES

The Appellant(s), the legal representative prosecuting this application and Appeal, and the assignee are not aware of any Appeals or Interferences that will directly affect or have a bearing on the Board's of Patent Appeals and Interferences decision in this pending Appeal.

STATUS OF CLAIMS

Claims 1-48 have been CANCELED.

Claims 49-56 are APPEALED.

STATUS OF AMENDMENTS

All amendments of all claims remaining in this Application and on Appeal have been entered without objection. The present claims on Appeal were added by an Amendment filed on June 10, 2009.

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SUMMARY OF CLAIMED SUBJECT MATTER

Claims 49, 53 and 55 are the only Independent Claims in this appeal. Paragraph numbers are used as citation references as both the original application as filed and the published Patent Application Document used the same paragraph reference numbers.

49. (PREVIOUSLY PRESENTED) An oil burner assembly, comprising: **[paragraph 002 and 0045]**

a) an oil distribution nozzle; **[0045]**

b) a manifold i) constructed of a unitary body of thermally transmissive material and **[Abstract, FIGs. 1 and 2 and paragraph 0061]** ii) having first and second continuous passageways, **[0061, 0064 and FIGs. 3 and 4]** wherein each of said first and second passageways terminates at separate inlet and outlet ports, wherein said oil distribution nozzle is coupled to the outlet port of said first passageway; **[0045 and 0047]**

c) a source of oil coupled to the inlet port to said first passageway such that the oil flows through said first passageway and is discharged from said nozzle; **[0045 and 0047]**

d) a source of heated liquid coupled to the inlet and outlet ports of said second passageway to flow through said second passageway such that the heated liquid flow heats the manifold and transfers heat to oil in the first passageway to elevate the temperature of oil flowing in said first passage way as the oil is discharged from the nozzle; and **[0045, 0047, 0054 and 0057]**

e) an igniter mounted to said manifold and aligned to said nozzle to ignite the heated oil discharges from said nozzle. **[0045 and 0047]**

53. (PREVIOUSLY PRESENTED) An oil burner assembly, comprising: **[paragraph 002 and 0045]**

a) an oil and air distribution nozzle; **[paragraph 0045 and 0047]**

b) a manifold i) constructed of a unitary body of thermally transmissive material and **[Abstract, FIGs. 1 and 2 and paragraph 0061]** ii) having first, second and third continuous passageways, **[0061, 0064 and FIGs. 3 and 4]** wherein said first passageway

terminates in first and second coaxially aligned cavities, wherein said second cavity is coupled upstream of said first cavity, wherein an oil distribution portion of the nozzle mounts in said first cavity and an air distribution portion of the nozzle mounts in the second cavity, and wherein said third passageway terminates at said second cavity; **[0045, 0047, 0054 and 0057]**

c) a source of oil coupled to an inlet port to said first passageway such that the oil flows through said first passageway and is discharged from said nozzle; **[0045, 0047, 0054 and 0057]**

d) a source of heated liquid coupled to an inlet port to said second passageway to flow through said second passageway to an outlet port such that the liquid flow heats the manifold and transfers the heat to elevate the temperature of oil flowing in said first passageway to a combustible temperature as the oil is discharged from the nozzle; **[0045, 0047, 0054, 0057 and 0061]**

e) a source of pressurized air coupled to an inlet port to said third passageway such that the air is heated via heat transferred from the liquid as the air flows through said third passageway prior to being discharged from the nozzle to atomize the heated oil discharged from the nozzle; **[0045, 0047, 0048, 0054 and 0057]** and

f) an igniter mounted to said manifold and aligned to nozzle to ignite the heated and atomized oil discharged from said nozzle. **[0045 and 0047]**

55. (PREVIOUSLY PRESENTED) A method of operating an oil burner, comprising the steps of: **[paragraph 002 and 0045]**

a) providing a source of oil; **[0045, 0047, 0054 and 0057]**

b) providing a source of heated liquid; **[0045, 0047, 0054 and 0057]**

c) providing a manifold coupled to an oil distribution nozzle, **[Abstract, FIGs. 1 and 2 and paragraph 0061]** wherein said manifold is constructed of a thermally transmissive block of metal, **[Abstract, FIGs. 1 and 2 and paragraphs 0045, 0061, 0064]** wherein first and second displaced, continuous channels are formed into said manifold and respectively terminate at separate inlet and outlet ports, **[FIGs. 3 and 4 and paragraphs 0045, 0061, 0064]** and wherein an oil distribution portion of the nozzle is coupled to the outlet port of said first channel; **[0045, 0047, 0054 and 0057]**

d) coupling said source of oil to the inlet port to said first channel and said source of heated liquid to the inlet and outlet ports of said second channel and wherein said first and second channels are arranged in said manifold such that liquid flowing through said second channel transfers heat to oil flowing in said first channel to elevate the temperature and said oil to a combustible temperature as the heated oil is discharged from the nozzle; and **[0045, 0047, 0054 and 0057]**

e) igniting the heated oil upon discharge from the nozzle oil distribution port. **[0045 and 0047]**

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Solely for the purposes of expediting this Appeal and complying with the requirements of 37 C.F.R. 1.192(c)(7), the following grouping of claims is presented. This grouping is not intended to constitute any admission on the record that claims within groups may or may not be independently asserted in subsequent litigation or that for any judicial determination other than this Appeal, the claims may or may not stand by themselves against any challenge to their validity or enforceability.

There is a single ground of rejection on Appeal:

Claims 49-56 have been rejected under 35 U.S.C. 103(a) as unpatentable over Wilson (U.S. Patent No. 5,156,139) in view of Briggs (U.S. Patent No. 5,879,149) and Otsbo (U.S. Patent No. 3,865,185).

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ARGUMENT

Claims 49-56 have been rejected under 35 U.S.C. 103(a) as unpatentable over Wilson (U.S. Patent No. 5,156,139) in view of Briggs (U.S. Patent No. 5,879,149) and Otsbo (U.S. Patent No. 3,865,185).

The Office Action asserts that the response of applicant was not convincing because the arguments were directed at the individual references and not the combination of references. That assertion is incorrect. As with any rejection under 35 U.S.C. 103(a), applicant reviewed the primary reference (Wilson), determined what elements of the claimed invention were absent from that reference (which must be performed on the individual primary reference) and then analyzed the specific disclosure and teachings of the secondary references (Briggs and Otsbo) to show why those teachings of the secondary and tertiary references did not correct the deficiencies of the primary Wilson reference. Applicant specifically raised issues concerning the quality of the teachings of the secondary references in overcoming the deficiencies of the Wilson reference and why the secondary references could not be combined with Wilson. Too many of those raised issues were preempted and avoided by the general assertion of analyzing the references separately.

Some of the main (but not exclusive) differences between the claimed subject matter and the disclosure of Wilson that must be overcome by the teachings of the additional art are specifically identified as follows:

CLAIM 49	WILSON	COMMENTS
d) a source of heated liquid coupled to the inlet and outlet ports of said second passageway to flow through said second passageway	Thermal heating element **14** to heat the fuel in the second passageway **22A**.	The first passageway **16** contains air as a source of oxygen for combustion.
such that the heated liquid flow heats the manifold and transfers heat to oil in the first passageway to elevate the temperature of oil flowing in said first passage way as the oil is discharged from the nozzle; and	Thermal heating element **14** to heat the fuel in the second passageway **22A**.	The first passageway **16** contains air as a source of oxygen for combustion.

As can be seen, there is a fundamental difference between the underlying structure of the claimed technology and that of Wilson. The present invention uses fluid in specifically associated passageways to heat combustible oil fluid in adjacent passage ways. The "thermal heating element **14**" of Wilson is not a flow mechanism, but is apparently a solid element which must be electrically heated to provide heat through its length. It is almost inconceivable that any other source of heat to the solid element of Wislon could be provided as a designed function. In addition, there is only a single flow path **2A** for fluid flow in the Wilson system. That flow path is repeatedly diverted as a critical element of the practice of the Wilson technology of flow director plugs:

> "The block 20, the bore or bores 18 and the flow director plug or plugs 30 are designed to provide a fuel flow passage 22 which undulates upward and downward thereby increases the dwell time or the time during which fuel is within the block 20 and also creating substantial surface area through which heat is transferred or transferable from the block 20 when it is heated to the fuel flowing in such an undulating manner therethrough."

The rejection asserts that Briggs suggests the use of a coaxial set of cavities to carry fuel and air to a nozzle where the fuel is burned. Briggs, however, also teaches an electrically heated fuel system **(just as does Wilson)** and requires that electrically heated system as part of his basis for improved technology. The electrical heating element of Briggs, as with the electrical heating element of Wilson, is a fundamental and required element of the practice of the respective technologies. The flow patterns and orientation of elements within the structures of both Wilson and Briggs are dependent upon the use of the electrical heating elements disclosed therein.

> **BRIGGS:** "The improvement comprises an electrically-powered positive temperature coefficient (PTC) heating element for receiving power from a source. The PTC heating element is mounted in heat transfer relationship with oil contained within the passageway disposed upstream of the nozzle block assembly for heating the oil contained therein to about a preselected temperature."

The problem in this asserted combination is that in attempting to use Wilson as a base reference and add the multiple flow elements of Briggs to Wilson, the basic invention of Wilson (the "director plugs") must be discarded to provide the multiple fluid flow (air and oil), yet at the same time, **both references require the use of electrical heating**

elements to make the systems work. Combining Briggs with Wilson does not "improve" Wilson, but destroys its underlying invention with no specific benefit except to make the structure appear to be more similar to the claims of the invention.

More importantly, Briggs asserts that his structure, using electrical heating elements, improves performance against carbonization. The present invention, by removing the essential electrical elements of Wilson and Briggs, further improves performance of the heating systems against carbonization. It is the removal of the electrical elements in the fuel heating system (of both Wilson and Briggs) **using the further recited physical structure of the claims** that makes this further improvement.

The addition of Otsbo to the combination of Wilson in view of Briggs does not address the problem or the solution provided by the present invention. Although Otsbo does make a general reference to heating fuels by using heated air (Figures 3 and 4, Column 2, line 42 through column 3, line 23), there is no indication that this form of heat exchange will solve the problem of carbonization which Briggs already asserts is improved by his electrical system and structure. As the rejection asserts that electrical heating, required by both Wilson and Briggs in their constructions is equivalent to the heating system of Otsbo, the results with respect to carbonization would be expected to be equivalent. In fact, by the constant temperature and regularity in the temperature provided to the system by the presently claimed invention, reduction of carbonization occurs. This is not an expected result from the use of the diverse systems of Ostbo and (Wilson in view of Briggs). There is no expectation or predictability in the improvement provided from the teachings of the prior art. The subject matter as a whole cannot be obvious when the results are not obvious.

Additionally, as previously mentioned, the references cannot be easily combined because of the effort needed to randomly select individual element combinations from each of the references to match limitations in the claims. Claim 50 is an excellent basis for this analysis. In that claim 50, the at least two fluid flow cavities must be coaxially aligned, specifically "...wherein said second cavity is coaxially aligned upstream of said first cavity,..." The structure and physical requirements of the sinusoidal movement of Wilson absolutely excludes this orientation of heating element and oil flow stream for his invention to perform. **Briggs also does not have coaxial flow of heat exchange as asserted. Note Figures 4 and 5 and the disclosure at column 5, line 26 through**

column 6, line 43. The heat exchange occurs by direct contact of the oil passing through canister **84** which contains the electrically heated fins **108**. This is clearly shown in this disclosure. Therefore, it is incongruous and ineffective to assert that the air conduit **140** and fuel conduit **126** of Briggs teaches the use of coaxial movement of fluids as a heat transfer system for heating fuel. This is absolutely clear as Briggs uses the electrical heating elements **72** to heat the walls of the central opening **106** of the fins **108**. Although Briggs may show coaxial fluid flow, it is not as a heating element, but is a mixing point on the nozzle.

This combination is not instructive of the claimed subject matter. Otsbo also fails to teach or instruct such concentric flow. Otsbo shows flow through plates with cross channels **44, 45, 46, 47, 48 and 49** and does not have coaxial flow as required by claim 50. **There is absolutely no basis of record from the teachings of the references to show coaxial flow of the fuel and heating fluid recited in Claim 50 and claims 51-52 dependent therefrom.**

Wilson in view of Briggs and Otsbo also do not teach the use of three cavities as recited in this claim where two cavities are the fluid exchange heating system and the third cavity is the atomizing air flow system. Even though Wilson shows air atomization, there are no two additional cavities combined with it in a nozzle. Again, random individual elements of the structures of the references are being combined to perform tasks and achieve goals not instructed by the references at the expense of the needs of the individual references according to their own teachings. **There is no specific teaching of the specific three cavities recited in claims 50, 53 and 56 (and claims dependent therefrom).** It is impossible for the references of record to establish obviousness for structures that are not available, shown or suggested by the references of record.

THERE HAS BEEN NO ASSERTION OR RESPONSE TO THAT ISSUE IN THE REJECTIONS OF RECORD. Appellants request specific response to the issue of the failure of the references to show the three distinct passageways recited in claims 50-52, 53-54 and 56. Failure to address that specific issue will merely confirm the failure of the references to teach the invention as a whole.

The attempt to combine the references to show that structure completely fails to be instructive and teach the obviousness of the recited structure and its results of reducing carbonization.

Claim 55 contains similar limitations as those in claim 50 and also recites that "...wherein first and second displaced, continuous channels are formed into said manifold and respectively terminate at separate inlet and outlet ports,..." Neither Briggs with a plate exchange and liquid flowing along the plates, nor Otsbo with a plate exchange and again liquid being diverted between multiple passages to flow along plates shows "continuous channels." As no reference except for Wilson shows a single continuous channel (even though serpentine), there is no possible way in which the three references would be combined to provide two aligned continuous channels adjacent each other for the flow of the oil and the heating fluid.

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CONCLUSION

All rejections of record have been shown in detail to be in error. The rejection should be reversed and all claims should be indicated as allowable.

Applicants believe the claims are in condition for allowance and request reconsideration of the application and allowance of the claims. The Examiner is invited to telephone the below-signed attorney at 952-832-9090 to discuss any questions that may remain with respect to the present application.

Respectfully submitted,
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Date 26 April 2010 By _____
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I hereby certify that this correspondence is being deposited with the United States Postal Service by facsimile transmission, or as first class mail in an envelope addressed to Box: APPEAL BRIEF - PATENTS, P.O. BOX 1450; Commissioner for Patents, Alexandria, VA 22313-1450 on 26 April 2010.

Name: Mark A. Litman Signature _____

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CLAIMS APPENDIX

Claims 1-48 (CANCELED)

49. (APPEALED) An oil burner assembly, comprising:

a) an oil distribution nozzle;

b) a manifold i) constructed of a unitary body of thermally transmissive material and ii) having first and second continuous passageways, wherein each of said first and second passageways terminates at separate inlet and outlet ports, wherein said oil distribution nozzle is coupled to the outlet port of said first passageway;

c) a source of oil coupled to the inlet port to said first passageway such that the oil flows through said first passageway and is discharged from said nozzle;

d) a source of heated liquid coupled to the inlet and outlet ports of said second passageway to flow through said second passageway such that the heated liquid flow heats the manifold and transfers heat to oil in the first passageway to elevate the temperature of oil flowing in said first passage way as the oil is discharged from the nozzle; and

e) an igniter mounted to said manifold and aligned to said nozzle to ignite the heated oil discharges from said nozzle.

50. (APPEALED) An oil burner assembly as set forth in claim 49 wherein said nozzle comprises an oil and air distribution nozzle, wherein the outlet port of the first passageway includes first and second cavities, wherein said second cavity is coaxially aligned upstream of said first cavity, wherein an oil distribution potion of said nozzle mounts in said first cavity, wherein the manifold includes a third passageway that terminates in said second cavity, wherein an air distribution portion of said nozzle mounts in said second cavity, and including a source of pressurized air coupled to an inlet port to said third passageway such that air is heated in said third passageway prior to being discharged from the nozzle to atomize heated oil discharged from the nozzle.

51. (APPEALED) An oil burner assembly as set forth in claim 50 wherein said second passageway comprises a plurality of convoluted portions.

52 (APPEALED) An oil burner assembly as set forth in claim 50 wherein a narrowed of said third passageway includes a plurality of narrowed portions that coupled to said second cavity and wherein said second cavity abuts and is concentrically aligned to said first cavity.

53. (APPEALED) An oil burner assembly, comprising:

a) an oil and air distribution nozzle;

b) a manifold i) constructed of a unitary body of thermally transmissive material and ii) having first, second and third continuous passageways, wherein said first passageway terminates in first and second coaxially aligned cavities, wherein said second cavity is coupled upstream of said first cavity, wherein an oil distribution portion of the nozzle mounts in said first cavity and an air distribution portion of the nozzle mounts in the second cavity, and wherein said third passageway terminates at said second cavity;

c) a source of oil coupled to an inlet port to said first passageway such that the oil flows through said first passageway and is discharged from said nozzle;

d) a source of heated liquid coupled to an inlet port to said second passageway to flow through said second passageway to an outlet port such that the liquid flow heats the manifold and transfers the heat to elevate the temperature of oil flowing in said first passageway to a combustible temperature as the oil is discharged from the nozzle;

e) a source of pressurized air coupled to an inlet port to said third passageway such that the air is heated via heat transferred from the liquid as the air flows through said third passageway prior to being discharged from the nozzle to atomize the heated oil discharged from the nozzle; and

f) an igniter mounted to said manifold and aligned to nozzle to ignite the heated and atomized oil discharged from said nozzle.

54. (APPEALED) An oil burner assembly as set forth in claim 52 wherein said third passageway comprises a first portion and a plurality of second portions that branch from said first portion, wherein said second portions exhibits longitudinal cross-sections smaller than a longitudinal cross-section of said first portions, and wherein said second portions couple to said second cavity.

55. (APPEALED) A method of operating an oil burner, comprising the steps of:

a) providing a source of oil;

b) providing a source of heated liquid;

c) providing a manifold coupled to an oil distribution nozzle, wherein said manifold is constructed of a thermally transmissive block of metal, wherein first and second displaced, continuous channels are formed into said manifold and respectively terminate at separate inlet and outlet ports, and wherein an oil distribution portion of the nozzle is coupled to the outlet port of said first channel;

d) coupling said source of oil to the inlet port to said first channel and said source of heated liquid to the inlet and outlet ports of said second channel and wherein said first and second channels are arranged in said manifold such that liquid flowing through said second channel transfers heat to oil flowing in said first channel to elevate the temperature and said oil to a combustible temperature as the heated oil is discharged from the nozzle; and

e) igniting the heated oil upon discharge from the nozzle oil distribution port.

56. (APPEALED) A method as set forth in claim 53 wherein said nozzle comprises an oil and air distribution nozzle, wherein said manifold includes a third channel terminating at inlet and outlet ports, wherein said third channel comprises a first portion and a plurality of second portions that branch from said first portion, wherein said second portions exhibit longitudinal cross-sections narrower than a longitudinal cross-section of said first portion, and wherein said second portions couple to an air distribution portion of said nozzle and including the steps of providing a source of pressurized air and couple said air source to the inlet port to said third channel such that the air is heated in said third channel prior to being discharged from the nozzle to atomize heated oil discharged from the nozzle.

EVIDENCE APPENDIX

Neither Appellants nor their counsel in this Appeal are aware of any secondary or supplemental evidence submitted during the prosecution of this Application that must be considered by the Board of patent Appeals in this decision.

RELATED PROCEEDINGS APPENDIX

Neither Appellants nor their counsel on this Appeal are aware of any proceedings before the US Patent and Trademark Office or any US Judicial or Quasi-Judicial authority that relates directly towards any issues in this Appeal.